Safety Topic of the Month Heat Stress



Richmond Refinery

June 1, 2012

This STOTM satisfies the RI-300 IIPP requirement for the following:

Include a system for communicating with employees in a form readily understandable by all affected employees on matters relating to safety and health, including provisions designed to encourage employees to inform the employer of hazards without fear of reprisal.

Meetings – Each meeting begins with a short safety topic.

- Individual divisions/work groups organize and conduct safety meetings (committee or work team) to fit with work schedules, etc. Generally these meetings occur monthly and minutes from the meeting are posted or circulated through the work group.
- · Records of safety meetings should be maintained for at least one year in division files.

Active Learner acknowledgement for affected groups has been assigned and due by the end of the month.

Heat Illness Prevention Plan



- Refinery Instruction 392: Heat Illness Prevention Plan
 - Describes procedures and responsibilities of personnel to control risk of heat illness while working outdoors
 - Requirements:
 - Provision of Water
 - Access to Shade
 - High Heat Procedures
 - Employee/ Supervisor Training

http://www.ric841.chevron.net/referenc/REF_INST/RI-New/ri-300/ri-341.pdf

Heat Illness: Risk Factors



Environmental Risk Factors

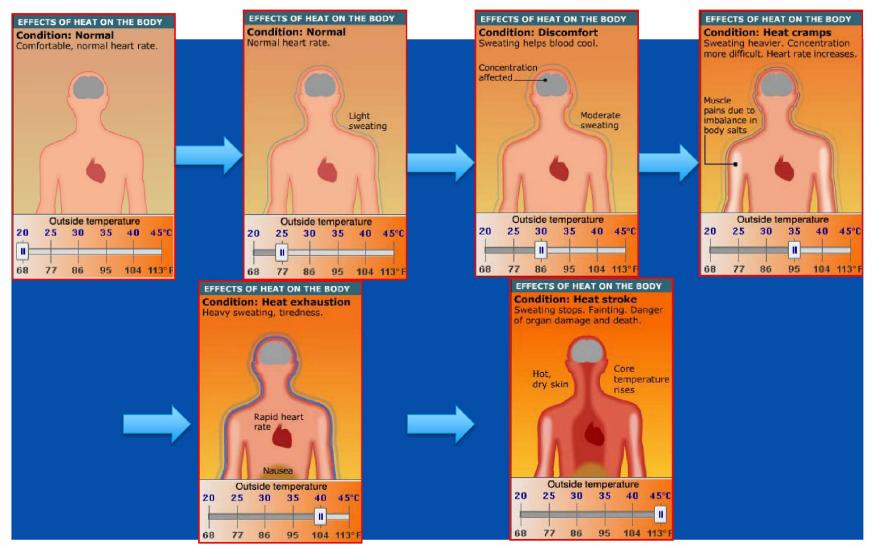
- Air Temperature
- Relative Humidity High humidity less evaporative cooling;
 makes it difficult for body to naturally cool
- Radiant Heat (ex. direct sun, operating equipment)

Personal Risk Factors

- Age our bodies sweat less efficiently as we get older
- Degree of Fitness
- Use of alcohol, caffeine, energy drinks, or drugs such as diuretics – can cause dehydration
- Acclimatization temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it.

Progression of the effects of outside temperature (heat) on your body



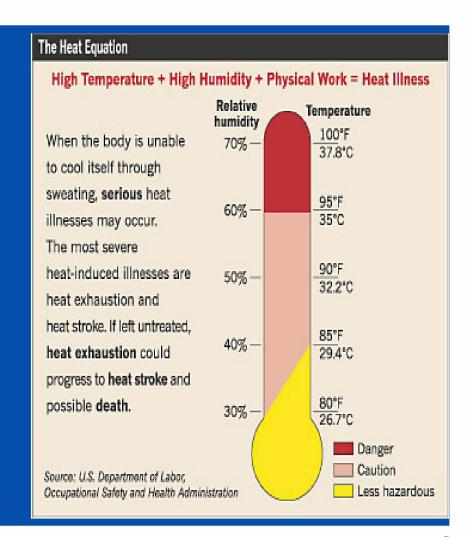


Effects of Heat Illness



Exposure to extreme heat can result in occupational illnesses and/or injuries.

- Heat stress can result in:
 - Heat stroke
 - Heat exhaustion
 - Heat cramps
 - Heat rash



Types of Heat Illness



Heat Stroke

- Heat Stroke occurs when the body becomes unable to control its temperature:
 - The body's temperature rises rapidly,
 - The sweating mechanism fails,
 - The body is unable to cool down.
- Heat stroke can cause death or permanent disability if emergency treatment is not given.

Symptoms include:

- Hot, dry skin or profuse sweating
- Hallucinations
- Throbbing headache/ chills
- Confusion/dizziness

Types of Heat Illness



Heat Exhaustion is the body's response to an excessive loss of the water and salt, usually through excessive sweating

Workers most prone to heat exhaustion are those that are 65 years of age or older, are overweight, have heart disease or high blood pressure, or take medications that may be affected by extreme heat.

Symptoms include:

- Heavy sweating
- Extreme weakness or fatigue
- Dizziness, confusion
- Nausea
- Clammy, moist skin
- Pale or flushed complexion
- Fast and shallow breathing

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Types of Heat Illness



Heat Cramps

- usually affect workers who sweat a lot during strenuous activity.
- This sweating depletes the body's salt and moisture levels. Low salt levels in muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion.

Symptoms Include:

Muscle pain or spasms usually in the abdomen, arms, or legs.

Heat Illness Prevention: Water, Rest. Shade



California Occupational Health and Safety Administration

- Plan Ahead
 - Conduct your LPSA!!
 - Check weather forecasts: http://www.weather.gov/
- Drink plenty of water
 - 1 quart every hour = 2-16oz water bottles per hour
 - "Supervisors shall encourage employees to drink water frequently" RI-392.4
- Take breaks in shaded areas
 - "Employees shall be allowed and encouraged to take a cool-down rest in the shade for a period of no less than five minutes at a time when they feel the need to do so to protect themselves from overheating" RI-341.4
- Wear loose, lightweight clothing

High Heat Procedures



RI-392.4

- High heat procedures shall be implemented when temperature equals or exceeds 95°F
- Procedures:
 - Ensure effective communication by voice, observation or electronic means are maintained so that supervisor can be contacted when necessary
 - Observe employees for alertness and signs or symptoms of heat illness
 - Employees should drink plenty of water

High Heat Work Environments: Hot Work & General Work Permits



RI-341.15

- Shift Team Leaders, Head Operators, or Supervisors responsible for the work area <u>should</u> <u>ensure that all practical methods of controlling the</u> <u>temperature</u> are implemented in order to reduce the workers' exposure to heat
 - Examples: barriers to block radiant heat, forced ventilation to decrease ambient heat, provide access to shade and water, and process changes to reduce heat generation

High Heat Work Environments: Hot Work & General Work Permits



RI-341.15

- When personnel are required to work in environments in excess of 85°F Appendix V of RI should be followed
 - 15.1- A high-temperature Work Permit MFG-7240 will be initiated by the Head Operator when required by Appendix V
 - 15.2 When temperatures are in excess of 120°F a written rescue plan must be used (refer to Appendix V of RI)

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What to do in an emergency....



- Call for medical help immediately
- Move person to cooler location
- Loosen clothing
- Allow person to lay flat with feet slightly elevated
- Fan the individual
- Lightly spray or damp individual with lukewarm water

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Review TOP Lessons Learned and Recent Near Loss Data



- Learning from our past incidents will help us prevent them in the future.
- Please take a few minutes to review the latest TOP lessons learned.

Click Here to Review TOP Lessons Learned

For more information/discussion, please contact your area
 Field Safety Coordinator

References



Refinery Instructions: 392 & 341.15

RI-341.15 will be moved and included into RI-392

http://www.ric841.chevron.net/referenc/REF_INST/RI-New/ri-300/ri392.pdf

http://www.ric841.chevron.net/referenc/REF_INST/RI-New/ri-300/ri-341.pdf

Centers for Disease Control and Prevention:

http://www.bt.cdc.gov/disasters/extremeheat/heat_guide.asp

State of California Department of Industrial Relations:

http://www.dir.ca.gov/dosh/heatillnessinfo.html